

Reference:

Asphalt Mix Designs

Objective

Overview

Entering an Asphalt Mix Design into HiCAMS

Accessing Asphalt Mix Designs

Overview

Asphalt Producers design asphalt mixes that they would like to produce for state construction projects. Their mix design must first be reviewed and approved by the M&T Asphalt Lab.

The design process begins with the producer downloading a DOT Excel spreadsheet system from the Web. The producer designs the mix and enters all pertinent data into the spreadsheet. The primary form produced in the system is the M&T 601 form for Marshall mixes and 601(SP) for Superpave mixes. The system also produces a number of graphs, including the 45 power chart.

Once completed, the producer mails the Asphalt Mix Design packet to the M&T Asphalt Lab. If the producer submits an electronic copy of the packet, M&T personnel will store the electronic copy for backup.

Note: *Eventually, the electronic copy will automatically be imported into HiCAMS.*

M&T personnel will manually enter the 601 data into HiCAMS. HiCAMS will assign an asphalt mix id for the record entered as a 5 digit number. The first 2 digits will equate to the year the record is entered (e.g. 00 for 2000, 01 for 2001 etc.). The last 3 digits will be a system-maintained sequential number, beginning each year with 001. The created mix design record will have a status of 'Pending'.

The M&T Asphalt Lab will review the mix design packet and determine if the request should be approved or rejected. They will then mark the mix design record "Approved" or "Rejected" accordingly. Rejection of a mix design triggers a notification to the Pavement Construction Section and Divisional QA Lab. The producer may choose to adjust a rejected mix design and re-submit it.

Note: *If the producer re-submits a mix design, the adjusted mix will have a separate mix design id, but the new record can be related to the original.*

Approved mix designs are eligible to become an approved Job Mix Formula that can be produced and used on a state construction project. If desired, the Asphalt Lab can subsequently 'Approve' a mix design that had previously been 'Rejected'.

If the M&T Asphalt Lab approves the mix design, they send the packet to the Pavement Construction Section. In HiCAMS, an approved mix design automatically becomes available to the Pavement Construction Section for evaluation to determine if a job mix formula(s) should be created from the mix design. If the Pavement Construction Section determines that an approved mix design should *not* become an approved Job Mix Formula, they will mark the mix design record as 'Not In Use'. Since any record marked 'Not In Use' was an approved asphalt mix design, the Pavement Construction Section will be able to reset the status of those records to 'Approved' if at a later date it is desired to create an approved Job Mix Formula for those mix designs.

Note: *The Pavement Construction Section cannot approve a 'Pending' asphalt mix design (only the M&T Asphalt Lab has that authority). But they can mark a 'Not In Use' mix design back to 'Approved'.*

Pavement Construction can only create an approved Job Mix Formula from an approved Asphalt Mix Design. They can create multiple approved Job Mix Formulas from a single approved Asphalt Mix Design.

Authorized Users

The staff members who have Create, Update, and View rights are:

- ◆ Asphalt Lab Personnel

The staff members who have Create, Update, View, Approve and Reject rights are:

- ◆ QA Lab Supervisor

The staff members who can View, Print or Query data for Asphalt Mix Designs are:

- ◆ All other HiCAMS users

Create/View Asphalt Mix Designs

To Retrieve an Asphalt Mix Design in HiCAMS:

Step 1: Logon to HiCAMS. Select **References® Asphalt Mix Designs** from the menu:



The **Asphalt Mix Design** window displays:

A screenshot of the 'Asphalt Mix Designs' window in HiCAMS. The window has a title bar and a menu bar. Below the menu bar is a 'Filter' section with several input fields: 'AMD Type' (dropdown), 'AMD' (text), 'AMD Status' (dropdown), 'From' and 'To' (date pickers), 'Material' (dropdown), 'Search By Plant ID' (text), 'Producer' (text), and 'Contract' (text). To the right of the filter section are three buttons: 'Retrieve', 'Reset', and 'New AMD'. Below the filter section is a table with the following columns: 'AMD', 'AMD Type', 'Contract', 'Approved Producer/Supplier', 'Material', 'Status', and 'Status Effective'. The table is currently empty. At the bottom of the window are three buttons: 'Save As', 'Details', and 'New JMF'.

Note: In this case, the user has limited (view only) security for AMD. Therefore, the **New AMD**, **New JMF**, and **Save As** buttons are disabled. See **Authorized Users** section above for more detail.

Step 1: Use the various filters provided (or combination thereof) to select criteria for search and click the **Retrieve** button.

The following is an example of a search by *approved* AMDs without existing Job Mix Formulas:

The screenshot shows the 'Asphalt Mix Designs' application window. At the top, there are search filters: 'AMD Type' set to '(All)', 'AMD' set to '-', 'AMD Status' set to 'Approved - No JMF', 'Material' set to '(All)', 'Search By Plant ID' (empty), 'Producer' (empty), and 'Contract' (empty). There are buttons for 'Retrieve', 'Reset', and 'New AMD'. Below the filters is a table with the following data:

AMD	AMD Type	Contract	Approved Producer/Supplier	Material	Status	Status Effective
01-539	Superpave		Barnhill Contracting, Inc. - Rocky Mount	Asphalt Concrete Intermediate Course, Type RI 11	Approved - No JMF	09/06/2001
01-538	Superpave		Thompson-Arthur Paving Co., Div. Of APAC-C	Asphalt Concrete Surface Course, Type RS 9.5C	Approved - No JMF	09/06/2001
01-537	Superpave		Thompson-Arthur Paving Co., Div. Of APAC-C	Asphalt Concrete Surface Course, Type RS 9.5A	Approved - No JMF	09/06/2001
01-536	Superpave		Thompson-Arthur Paving Co., Div. Of APAC-C	Asphalt Concrete Surface Course, Type RS 9.5B	Approved - No JMF	09/06/2001
01-535	Superpave		Thompson-Arthur Paving Co., Div. Of APAC-C	Asphalt Concrete Surface Course, Type RS 12.5	Approved - No JMF	09/06/2001
01-534	Superpave		Thompson-Arthur Paving Co., Div. Of APAC-C	Asphalt Concrete Surface Course, Type RS 12.5E	Approved - No JMF	09/06/2001
01-533	Superpave		Maymead Materials, Inc. - Mountain City	Asphalt Concrete Surface Course, Type S 9.5C	Approved - No JMF	09/05/2001
01-532	Superpave		Mangum Asphalt Services - Raleigh, US 64	Asphalt Concrete Surface Course, Type RS 12.5	Approved - No JMF	09/05/2001
01-531	Superpave		Barnhill Contracting, Inc. - Rocky Mount	Asphalt Concrete Surface Course, Type RS 9.5B	Approved - No JMF	09/05/2001
01-530	Superpave		Barnhill Contracting, Inc. - Rocky Mount	Asphalt Concrete Surface Course, Type S 9.5B	Approved - No JMF	09/05/2001
01-529	Superpave		Thompson-Arthur Paving Co., Div. Of APAC-C	Asphalt Concrete Base Course, Type RB 25.0C	Approved - No JMF	09/05/2001
01-528	Superpave		Thompson-Arthur Paving Co., Div. Of APAC-C	Asphalt Concrete Base Course, Type RB 25.0B	Approved - No JMF	09/05/2001

At the bottom of the window are buttons for 'Save As', 'Details', and 'New JMF'.

Note: To clear the filters and begin a new search, click the **Reset** button.

With proper security (Pavement Construction Section users), the **New JMF** button can be clicked to create a JMF from the approved AMD.

With proper security (Asphalt Lab users), the **New AMD** button can be selected here to create a new AMD.

With proper security (Asphalt Lab users), the **Save As** button can be clicked to create a new AMD using data from a current AMD, to minimize the amount of data entry.

Step 2: To view the AMD details, double-click the appropriate line item or click the **Details** button:

The screenshot shows the 'Asphalt Mix Design Detail' window with the 'General' tab selected. The window displays the following information:

- AMD Type: Superpave
- AMD Received: 08/29/2001
- AMD: 01-539
- AMD Status: Approved - No JMF
- AMD Status Effective: 09/06/2001
- Contract: [Empty]
- Work Order: [Empty]
- Material: Asphalt Concrete Intermediate Course, Type RI 19.0B
- Search By Plant ID: [Empty]
- Producer: Barnhill Contracting, Inc., Rocky Mount - AS34
- Plant Location: Rocky Mount, NC
- County: Edgecombe
- Plant Certification: DM2130496
- Gyrations: 775/115
- Binder Grade: Asphalt Binder, PG 64 -22
- Asphalt Lab Supervisor Comment: [Empty]
- Comment: [Empty]

The **General** tab window is displayed. The AMD number is displayed beneath the AMD Type drop down menu. The first two digits indicate the year the AMD was created, followed by a sequential number assigned by HiCAMS. This tab contains information on the *Material* (Asphalt Bases & Pavements), *Plant Location*, *County*, *Plant Certification*, *Gyrations* and *Binder Grade* and Comments made by the Materials Inspector.

Note: The Asphalt Lab Supervisor Comment is protected by Security.

Step 3: Click the **Additives** tab. This window displays the Asphalt Binder and Anti-Strip Additive producers:

The screenshot shows the 'Asphalt Mix Design Detail' window with the 'Additives' tab selected. The window displays the following information:

- AMD Type: Superpave
- AMD Received: 08/29/2001
- AMD: 01-539
- AMD Status: Approved - No JMF
- AMD Status Effective: 09/06/2001
- Search By Plant ID: [Empty]
- Asphalt Binder Producer: Citgo, Chesapeake #90 - AT10
- Search By Plant ID: [Empty]
- Anti-Strip Additive Producer: Arr-Maz Products, Arr-Maz Products/Winter Haven - OT8880071

Step 4: Click the **Coarse Aggregates** tab. The window displays:

The screenshot shows the 'Asphalt Mix Design Detail' window with the 'Coarse Aggregates' tab selected. The window displays the following information:

- AMD Type: Superpave
- AMD Received: 08/29/2001
- AMD: 01-539
- AMD Status: Approved - No JMF
- AMD Status Effective: 09/06/2001

The 'Coarse Aggregates' tab is active, showing a table with the following columns: Material, JMF %, Other Producer, Search By Plant ID, and Approved Producer.

Material	JMF %	Other Producer	Search By Plant ID	Approved Producer
Coarse Aggregate, #6M	13.00			Hanson, Inc., Rocky Mount Quarry - CA65
Coarse Aggregate, #67	36.00			Hanson, Inc., Rocky Mount Quarry - CA65

- ◆ Material – lists the type(s) of coarse aggregate material used in the AMD.
- ◆ JMF% - displays the percentage of this material required in the JMF.
- ◆ Other Producer - displays producer used other than the approved Producer.
- ◆ Search By Plant ID - allows the selection or update of the Approved Producer by entering the Plant ID.
- ◆ Approved Producer – allows the selection or update of the Approved Producer by selecting from a list (click the **Producer** icon next to field).

The screenshot shows the 'Asphalt Mix Design Detail' window with the 'Fine Aggregates' tab selected. The window displays the following information:

- AMD Type: Superpave
- AMD Received: 08/29/2001
- AMD: 01-539
- AMD Status: Approved - No JMF
- AMD Status Effective: 09/06/2001

The 'Fine Aggregates' tab is active, showing a table with the following columns: Material, JMF %, Other Producer, Search By Plant ID, and Approved Producer.

Material	JMF %	Other Producer	Search By Plant ID	Approved Producer
Screenings	19.10	HANSON ROCKY MOUNT		
Sand, Natural	21.00	FOUNTAIN		
Recycled Asphalt Pavement (RAP), Fine	10.90	STOCKPILE		

Step 5: Click the **Fine Aggregates** tab. The window displays:

- ◆ Material – lists the type(s) of fine aggregate material used in the AMD.
- ◆ JMF% - displays the percentage of this material required in the JMF.
- ◆ Other Producer - displays producer used other than the approved Producer.
- ◆ Search By Plant ID - allows the selection or update of the Approved Producer by entering the Plant ID.

- ◆ Approved Producer – allows the selection or update of the Approved Producer by selecting from a list (click the **Producer** icon next to field).

Click the **Results** tab. The window displays:

The screenshot shows the 'Asphalt Mix Design Detail' window with the 'Results' tab selected. The window contains the following data:

Sieve Size	% Passing
50.0 mm	100.00
37.5 mm	100.00
25.0 mm	100.00
19.0 mm	99.00
12.5 mm	84.00
9.5 mm	75.00
4.75 mm	55.00
2.36 mm	46.00
1.18 mm	37.00
0.600 mm	25.00
0.300 mm	14.00
0.150 mm	7.00
0.075 mm	4.50

Agg. Bulk Dry S.G.:	2.632	Rice S.G.:	2.474
Agg. Effective S.G.:	2.641	Lab S.G.:	2.375
Agg. Apparent S.G.:	2.668	VTM %:	4.00
% AC Absorption:	.10	VMA %:	13.70
RAP % / Virgin %:	11 / 89	VFA %:	71.00
AC in RAP %:	5.50	Stability:	.00
Anti-Strip Additive %:	.25	Flow:	.00
		Virgin AC %:	3.70
		AC from RAP %:	.60
		Other AC %:	.00
		Total AC %:	4.30

The M&T Asphalt Lab technicians enter the data in these fields. The data is extracted from the **M&T 601** form received as part of the mix design packet from the Asphalt Producer/Supplier.

All three columns of data represent the results of tests run on the coarse and fine aggregates and asphalt cement (binder) used in the proposed asphalt mix design.

Step 6: Click the **Approval** tab. This will display the history of the review process of the Asphalt Mix Design to date. With proper security, the effective date fields can be updated as necessary.

Step 7: Click the **History** tab. This will display the history of all actions taken on this Asphalt Mix Design to date.

When the AMD is approved, a notification is sent to the Pavement Construction Section, where it is used to create

Job Mix Formula(s). See the Job Mix Formula section for further details.

AMD/JMF Life Cycle Diagram

